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12/11/2023

CS 470 Final Reflection

Presentation Link: https://www.youtube.com/watch?v=5-tJ26ij7rE

CS 470 Full Stack Development II has been significant in shaping my abilities as a software developer and has contributed to my professional growth. The skills I've acquired throughout this course have increased my understanding of cloud services and have also made me an asset in the software development field.

One of the key skills I've learned is the implementation of containerization and orchestration using Docker. The hands-on experience with containerization has provided me with a valuable tool for creating portable and scalable applications. Additionally, mastering the deployment of serverless architectures using AWS Lambda, S3 Buckets and API Gateway has opened new possibilities for developing cloud-based solutions. My strengths as a software developer lie in my ability to understand and adapt to technologies and problems. The course has enhanced my problem-solving skills and understanding of software development and deployment, especially in cloud-based development. I am prepared to assume roles related to full-stack development and cloud architecture.

In planning for the future growth of a web application, I would use microservices or serverless architectures for efficiency and scalability. Microservices provide modularity enabling independent scaling of different components, while serverless offers automatic scaling. Handling scale and error handling in a microservices or serverless environment involves designing for flexibility. This can include implementing failover mechanisms to ensure continuous operation during high demand or unexpected issues. When predicting costs in a cloud-based environment it’s based upon the models of the chosen provider. The serverless pay-as-you-go model provides

more cost predictability as you only pay for the actual usage, while containers may require more resource management to avoid unexpected costs. Several pros that can be deciding factors in expansion when using microservices or serverless include scalability, cost efficiency, and global accessibility. Cloud services provide the ability to scale resources dynamically, only pay for actual resource consumption, and be accessed globally. The cons can include dependency on service providers and data security concerns. When using a cloud provider, your application is reliant on their infrastructure and storing data in the cloud raises concerns about privacy.

Elasticity and the pay-for-service model are critical factors in decision-making for planned future growth. When planning for future growth, elasticity ensures that the application can handle increased workloads during peak times and decrease resources during periods of lower demand. The dynamic nature of elasticity enables businesses to adapt to unexpected changes in user behavior. The pay-for-service model provides cost optimization benefits, as organizations pay only for the actual resources consumed. Elasticity and pay-for-service together allow organizations to strike a balance between cost efficiency and optimal performance.